

Natural Resources Conservation Service

CONSERVATION *Showcase*

Conservation on Dairy Farm Truly Majestic

by Jason Johnson, Public Affairs Specialist

Southeast Iowa dairy farmer David Petersen's manure management projects keep potential contaminants out of two water drainage areas on his farm, ensuring cleaner water downstream to the Cedar, Iowa and Mississippi Rivers.

Petersen and his wife Amy's farm is appropriately named "Majestic Manor," which is nestled between Muscatine and Davenport, about 10 miles from the Mississippi River in Muscatine County. It has been in Amy's family for four generations.

They milk about 120 Holstein dairy cows twice daily, and also grow corn, alfalfa, oats, triticale, and soybeans on about 320 acres. Petersen likes to refer to his operation as "closed-loop" where the soil feeds the crops, the crops feed the cattle, and the cattle feed the soil. "It is a benefit to everyone," he says.



Beneath the slotted floor on David Petersen's dairy barn, is a waste storage facility to that can hold up to 500,000 gallons of liquid manure.

NRCS

Partnership

To more safely store and better utilize liquid dairy manure, Petersen installed

a waste storage facility in 2001 with planning and financial assistance through USDA's Natural Resources Conservation Service (NRCS). The storage structure can hold up to a half million gallons of liquid manure, which Petersen injects into his crop fields for nutrients. The manure storage structure sits below slotted livestock flooring, allowing manure to permeate to a concrete pit.

To participate in NRCS financial assistance programs, farmers like Petersen must first develop a conservation plan for their farm. The plan helps farmers prioritize resource concerns, which in Petersen's case was improving water quality through manure management practices – including storage and application.

Petersen received financial assistance through the Environmental Quality Incentives Program (EQIP) to offset the cost of his waste storage structure. EQIP is a locally led, voluntary USDA program that provides private landowners assistance to install conservation practices to treat natural resource concerns.

"We have a direct impact on water quality to the Mississippi River and we take that seriously," said Petersen. "(The waste storage structure) was a really nice project to get completed with NRCS assistance." In 2006, Petersen came to NRCS in need of assistance to design a grassed waterway to slow water entering the farm from the east. Grassed waterways reduce soil



David Petersen

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erosion in locations where gullies form naturally from concentrated water flows.

Through the conservation planning process, NRCS recommended Petersen install a vegetated treatment area to address potential manure runoff contamination from his livestock loafing area. With financial assistance through EQIP, Petersen installed the grassed waterway, and vegetative treatment area to help treat runoff.

A third EQIP-funded project is providing Petersen energy savings, and improving efficiency in his dairy operation. Through a practice called "Farmstead Energy Improvement," Petersen received NRCS assistance to retrofit 72 eight-foot T12 florescent lights with efficient LED lamps.

LED lighting consumes about 50 percent less energy than T12 florescent lights and lasts much longer. Research indicates that dairy cows respond to a photoperiod of 16 hours of daylight, or its equivalent. And Petersen says the LED lamps, combined with a timer and photo eye, provide the light intensity his cows need to produce well.

"These projects are for the benefit of everybody," said Petersen. "We are conserving soil and improving water quality, in addition to improving the economic impact of our business."

Stewardship

In 2011, Petersen was awarded a Conservation Stewardship Program (CSP) contract for his efforts as a successful land steward. Through CSP, NRCS makes payments to farmers to maintain existing conservation practices and further improve conservation on their land through enhancements. CSP contracts run five years, with the opportunity for renewal.



NRCS District Conservationist Jon Matz (right) sees Petersen as spokesperson for conservation in his part of the state.

Petersen adopted five new enhancements:

- » Locally growing and marketing his farm products through a dairy cooperative.
- » Performing an on-farm energy audit.
- » Using nitrogen provided from animal manure and crop rotation to supply 100 percent of the corn crop's nutrient needs.
- » Incorporating cover crop mixes on his cropland.
- » Conducting plant tissue testing and analysis to improve nitrogen management.

"USDA has been a partner with us from Day one," said Petersen. "I consider myself a poster child for what can happen when you combine good public policy and good public funding with good private initiative."